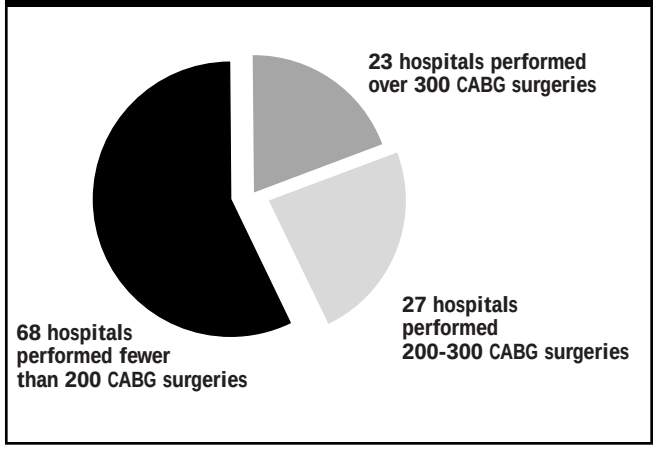
I. INTRODUCTION

The California Coronary Artery Bypass Graft Mortality Reporting Program

California Coronary Artery Bypass Graft Mortality Reporting Program (CCMRP) is a voluntary statewide hospital reporting program designed to collect and report coronary artery bypass graft (CABG) operative mortality at the hospital level. CCMRP produces uniform, hospital-level mortality data, adjusted to account for differences across hospitals in the mix of patients undergoing CABG surgery. The project was established in 1996 by the Pacific Business Group on Health (PBGH), a statewide coalition of purchasers of care, and the California Office of Statewide Health Planning and Development (OSHPD), the state agency responsible for reporting risk-adjusted hospital outcomes data. The California Chapter of the Society for Thoracic Surgeons (CASTS) and the national Society of Thoracic Surgeons (STS) also assisted with the implementation of this program.

PBGH and OSHPD selected CABG surgery because it is a frequently performed and costly procedure. Based on data from the 1998 OSHPD Patient Discharge Abstract database, 27,660 isolated[2] coronary artery bypass graft surgeries were performed at 118 California hospitals.[3] For 1998, the average hospital charge (prior to any group discounts) for a bypass procedure was approximately $78,000 (OSHPD, 1998).[4] For some hospitals, only births comprised a larger proportion of their total revenue. Among the 118 California hospitals that provided adult CABG surgery in 1998, more than half performed fewer CABG surgeries than the minimum annual volume of 200-300 cases recommended by the American College of Cardiology (1991).

Figure 1: 1998 California Hospital CABG Surgery Volumes



The Need for Comparative Outcome Data

Individuals and employers who often serve as purchasing agents for employee and dependent populations face difficulties in making informed health care purchasing and treatment decisions. Rarely is comparative information on health outcomes readily available to help guide consumer and purchaser choice in the marketplace. Consequently, purchasing and treatment decisions typically are based on price alone and not on the overall value of services—a key component of which is the quality of care.

[2] "Isolated" CABG means that no patient received both a CABG and an additional major procedure such as a valve repair or replacement during the same operation. Isolated CABG surgeries comprise the majority of heart operations in California and the U.S.

[3] All 118 hospitals performed at least 25 adult isolated CABG surgeries each during 1998.

[4] Few hospitals actually receive payment in the amount that charges represent. Reimbursement rates typically are much lower, ranging between $15,000 to $30,000 per case.

To make comparative quality information available to patients and purchasers, and to physicians and hospitals so they can engage in continuous quality improvement, PBGH and OSHPD established CCMRP. CCMRP will report, on a periodic basis, risk-adjusted mortality rates for isolated CABG surgery at each hospital in California that performs adult CABG surgery and that has voluntarily agreed to provide data to the reporting system.

In-hospital mortality was selected as a measure of hospital quality for isolated CABG surgeries because it can be reliably measured and affords comparability across hospitals. It should be noted that mortality is not the only measure of the quality of bypass surgery. Process measures and complications are also important quality indicators; however, these measures are difficult to measure reliably and in a consistent fashion across institutions to permit fair comparisons. The New York Department of Health's CABG reporting program has attempted the collection and comparison of complications data but found wide variation in reporting practices (i.e., significant under-reporting of complications) across hospitals, making uniform comparisons problematic.

Goals of CCMRP

CCMRP aims to provide comparative risk-adjusted mortality rates to:

- ***Hospitals and providers:*** to stimulate and facilitate quality review of surgical procedures and processes of care that will lead to improved outcomes;
- ***Purchasers of care:*** to assess hospital performance and incorporate quality measures into purchasing decisions; and,
- ***Patients and their family members:*** to enable them to make more informed treatment decisions.

Roadmap for this Document

Section II discusses the nature of heart disease and various treatment options, including CABG surgery. Section III describes the history and processes of the reporting program, detailing how specific data elements were selected for collection. Section IV explains how CCMRP recruited hospitals to participate in the program, Section V describes the methods CCMRP used to adjust hospital mortality data to account for risk differentials, and Section VI tabulates the resulting risk-adjusted hospital mortality rates for 1997-1998. Section VII explores the relationship between hospital volume and outcome for CABG procedures. Section VIII provides a summary of technical conclusions and Section IX describes additional resources.

Appendices provide detailed technical information. Appendix A defines the terms and instructions for CCMRP data submissions, Appendix B describes reporting programs conducted by other states and organizations, Appendix C displays the 1997-1998 CCMRP data collection form and tool, Appendix D lists the variables defined by previous research, specifically Jones and colleagues (1996), Appendix E contains the "Principles of Participation Agreement with Hospitals," Appendix F provides a technical description of the data, risk-adjustment methods, and results, and Appendix G shows univariate data summaries.